Hamesh Massay Science Grade6

7/21/17

Alternative Energy Project

Essential Question: What Alternative Energy source is can power your home?

Learning Objective: Students will conduct a feasibility study to determine the most efficient source of alternative energy for their homes.

Teacher Standard: 3c- Engaging students in Learning.

Student Standards for Engineering Design:

Planning and Carrying Out an Investigation.

Using Mathematics and Computational Thinking.

Engaging in Argument from Evidence.

Duration: 3 weeks/ checking in with teacher each week

Key terms:

1. Kilowatt- hour
2. Renewable Energy
3. Solar energy
4. Wind Power
5. Biomass
6. Hydrogen Fuel Cell
7. Tidal Power

Materials:

1. Video Top 10 Energy Sources of the Future (You tube)
2. Each Student will obtain a copy of their Electric utility bill
3. Complete a personal energy audit, [www.ei.lehigh.edu/learners/energy](http://www.ei.lehigh.edu/learners/energy)
4. Estimate the square footage of their roof

Mini-Lesson:

As you know our world relies on the use of fossil fuels to meet our power supply needs. Our homes are lit by power plants that burn fossil fuels. However the supply of fossil fuels is quickly being depleted and the byproducts of using such fuels are creating severe environmental problems and climate change. The solution to our problems is to adopt alternative energy sources that are renewable and have zero emissions. Your task is to carefully determine your family’s electricity needs, research the alternative energy sources, and based on your research, decide which source would best meet your needs.

Procedure:

1. Review key terms and show students the top ten future energy video.

2. Students will determine their total kilowatt-hour usage each month

3. Students will log on to [www.ei.lehigh.edu/learners/energy](http://www.ei.lehigh.edu/learners/energy), where they will complete an energy audit of their home and compare it with their utility bill if available. (This gives all students a point of reference in making realistic choices about their energy consumption/needs.)

1. Students will estimate the square footage of their roof (in preparation for consideration of roof mounted renewable energy systems)
2. Students take their knowledge of their energy needs and research the renewable, zero emission alternatives.
3. Students return to class and share their research findings. What alternative energy source will meet your family’s needs most efficiently and cost effectively?
4. In conclusion the class will decide on what steps they can take to move away from fossil fuel dependence and still meet their family’s energy demand needs.

Assessment:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Category | 4-Excellent | 3-Good | 2-Satisfactory | 1-Poor |
| Task | Clear evidence that student used critical thinking to complete task | Well done and evidence of some critical thinking | Work completed but little evidence of critical thinking | Work is incomplete and lacks evidence of critical thinking |
| Collaboration | Always shares and works well with others | Supports the work of others | Sometimes works well with others | Does not work with others |
| Understanding  concepts | Demonstrates full understanding of science concepts | Demonstrates sound understanding of science concepts | Demonstrates partial understanding of science concepts | Does not demonstrate understanding of science concepts |

Accommodations:

ENL students will use personal glossaries and visual/graphic organizers to prepare their reports. Teacher will work in small groups to assist IEP students who need directions read aloud or have challenges organizing and expressing their thoughts.